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REPORT ON TRANSFER OF TECHNOLOGY

Report of the Secretary-General of the Conference

I. Introduction

1. At its second substantive session, the Preparatory Committee requested the Secretary-General of the United Nations Conference on Environment and Development to continue to develop reports on cross-sectoral issues for discussion at its third session, taking into account General Assembly resolution 44/228 and relevant decisions of the Preparatory Committee, the views expressed in the discussion and the conclusions of the regional preparatory conferences.

2. Also, in General Assembly resolution A/45/210, it was stated that "The General Assembly requests the Secretary-General of the United Nations Conference on Environment and Development to consult the Secretary-General of the United Nations Conference on Trade and Development and other relevant United Nations organs, organizations and programmes in preparing the report on transfer of technologies requested in decision 1/8 of the first substantive session of the Preparatory Committee of UNCED, including, inter alia, the obstacles on both the importing and exporting sides that impede the transfer of environmentally sound technologies."

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3. In document A/CONF.151/PC/17, a number of issues pertaining to the transfer of environmentally sound technologies were discussed including current activities and work process.

4. In further developing the report, the UNCED Secretariat is working in close collaboration with the relevant UN agencies including the United Nations Conference on Trade and Development, the United Nations Centre for Science and Technology for Development, the United Nations Centre on Transnational Corporations, the United Nations Educational, Scientific and Cultural Organization, United Nations Environment Programme, the United Nations Development Programme, the United Nations Industrial Development Organization, the World Intellectual Property Organization, the World Bank and the General Agreement on Tariffs and Trade. The work has also received valuable support from the International Council of Scientific Unions, as well as the Business Council for Sustainable Development, as well as from members of the Working Party on Transfer of Environmentally Sound Technologies.

5. The UNCED Secretariat commissioned papers on environmental management and technology transfer in some developing countries including Brazil, China and Thailand. The papers addressed case studies in selected areas focusing on the issues of locally developed technology, technological and financial impediments faced in developing countries for sound environmental management and public experiences and proposals.

6. The study for Brazil covered the following four cases:

a. Environmental Issues and Riocell's Technological Strategy (paper and pulp sector);

b. Environmental Management and Technologies Development: CESP case studies (hydroelectricity generation sector);

c. Industrial Pollution in Cubatao (chemicals and steelmaking);

d. Corporate Strategy, Environmental Management and Technology Transfer: the CVRD Case Study (mining).

7. The study for China focused on coal combustion technology and pollution control. It included four case studies of:

a. Development of Circulating Fluidized Bed Combustion (CFBC) in China,

b. District heating and cogeneration system,

c. Coal Briquetting Technique, and

d. Coal Slurry Technique.

8. The study for Thailand is based on Thailand's experience in environmental monitoring research and training. The study relied heavily on the experience gained resulting from the establishment of the Environmental Research and Training Centre (ERTC).

9. Based on these three studies as well as reports from the United Kingdom. Government, the Government of Japan and the Business Council for Sustainable Development, and United Nations agencies, a Workshop on Transfer of Environmentally Sound Technologies was organized by the UNCED Secretariat in response to the decision 1/8(g) of the first Preparatory Committee meeting. The Workshop, held on 3 and 4 June, reviewed and analysed case studies and discussed general lessons to be drawn from these studies. This report takes into account the findings of these case studies.

The Issues

10. The discussion of the transfer of environmentally sound technologies, which is a specialized discussion within the long-standing broader debates on the transfer of technologies to developing countries, has to take into account the general prospects of the international flow of technology. In contrast to its rapid expansion in the 1960s and 1970s, the international flow of technology levelled off or even declined during the first half of the 1980s. 1/ prospects for technology transfer, technological development and economic growth in the developing countries in the 1990s depend not only on domestic but also increasingly on external forces. A review of trends in technology flows in the second half of the 1980s reveals continued growth in the relative importance of capital goods trade and foreign direct investment among developed market-economy countries, an acceleration of such flows to a small number of countries in developing Asia and only modest improvement compared with the first half of the decade in their rate of growth in real terms to the majority of developing countries. Adverse financial constraints have outweighed the effects of favourable legislation in the attempt to attract foreign investment and technology and have contributed to a growing inability of many developing countries to keep up with technological developments that will be required in order to maintain or achieve international competitiveness.

11. A supportive international economic and policy environment for promoting technology transfer and building technological capacities in developing countries has to be pursued. This could be based on a number of elements including easing the adverse effects of financial and balance-of-payments constraints, and taking full account of the developmental, trade and technological objectives of developing countries in resolving of outstanding international trade policy issues/particularly in areas such as intellectual property, and service and investment measures. Also, there is a need to further explore initiatives for stimulating technological cooperation, such as a new look at mechanisms in developed countries for encouraging technology transfer to developing countries using tax incentives.

12. A major challenge for the world community in the 1990s and beyond is how to elaborate and implement a strategy for sustainable development. Transfer and development of technology is an essential component of a successful strategy of sustainable development. Use of environmentally sounder technologies - whether imported or developed locally - can contribute significantly to raising the productivity and sustainability of resources in such areas as agricultural production, renewable energy generation and pollution control.

13. Although some forms of environmentally sound technologies are available, a massive effort will be necessary to develop and to bring to the market technologies that have the potential to slow down or even reverse the trend of environmental degradation in the atmosphere, biosphere and geosphere without reducing or delaying economic growth. Of special importance are measures required to make such technologies available to developing countries under conditions that are fair and affordable and to improve their capabilities to develop and apply them.

14. The environmental soundness of technologies is a relative rather than absolute term depending on technical and economic conditions as well as the levels of environmental standards. Though an absolute definition is not possible, environmentally sound technologies are usually less polluting, less energy and resource intensive, use renewable resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies they replace.

15. Environmentally sound technologies are not just individual technologies but total systems, which include procedures, processes, products and services as well as equipment. This implies that when discussing transfer of technologies, human resource development and local capacity building aspects of technology options should also be addressed.

16. As many of these technologies are strongly science-based and also more costly, particularly because of a relatively high share of investment for scientific research and technological development, it is important to identify and establish creative ways and mechanisms of international research and technology cooperation. Of special importance are measures required to transfer environmentally sound technologies to developing countries under conditions that are fair and affordable.

17. Transfer and development of technology could better be achieved through a long-term partnership between suppliers and users of technology. A long-term partnership in technology cooperation necessarily emphasizes systematic training over a period of time. Also, many suppliers, who are not fully organized for technology transfer or cooperation could be better organized through this process.

18. Effective transfer of technology would include support for the further development of the scientific, technological, professional and related institutional capacities which developing countries will require to enable them to make intelligent technology choices based on technology assessment, to properly apply and manage technologies and to improve upon existing technologies and adapt them to their own development needs and priorities.

19. Technology transfer should not only be environmentally sound, but also benign for women and children. Such technology should build on indigenous technology and knowledge, and make use of locally available material. Environmentally sound and equitable methods of production and species preservation should be promoted.

20. Women must have access to and control over gender-differentiated and appropriate technologies to improve the quality of life for themselves and their children, and to enhance their ability to continue primary roles as resource managers, caretakers and producers.

II. Obstacles to technology transfer

21. A number of barriers causing the under-use of environmentally sound technologies have been discussed in document A/CONF.151/PC/17.

22. The pace of new investment is a critical determinant of the rate at which new technologies spread. Retro-fitting of existing facilities, the replacement of existing sub-optimal equipment and the expansion of the stock of equipment all require investment funds. In an economy with a high rate of investment relative to the existing capital stock new technologies can be diffused more rapidly.

23. Another important factor, which is related to the slow rate of new investment, is the availability of adequate financing to support the transfer of environmentally sound technologies to developing countries. Costs of new environmentally sound technologies are frequently greater than existing "polluting" technologies. However, in costing environmentally sound technologies, total life-cycle costs and effects of such systems of technologies should be considered, taking into account long-term beneficial effects. Given their present economic and financial problems, developing countries are, and will continue to be, constrained in securing necessary resources for acquiring environmentally sound technologies or developing their own endogenous capacities, without access to adequate financial flows.

24. Obstacles to transfer of environmentally sound technologies are also related to capacities, including human-resource base availability in developing countries, to assess, acquire, absorb, master and develop them. Technology suppliers may, in some cases, be unwilling to transfer technologies without adequate assurance that there exists the necessary supporting infrastructure to ensure safe implementation. Maintenance of high capital or skill intensive technologies can be difficult without the associated technological "know-how" and human resources.

25. Another category of barriers relates to the access to technological information, both on existing environmentally sound technologies and environmental risk from technologies on the international market. It is argued that there are insufficient effective arrangements for scientific and technological information exchange to help make environmentally sound technology decisions in developing countries.

26. The extent of the use of environmentally sound technologies is also linked to the prevailing environmental standards and the size of the market for them. Lack of information and insufficient level of requirements result in too small a market to be profitable for the sellers of the environmentally sound technologies and to be expensive for the buyers, particularly in developing countries. Also, the price set for the protection of patents can often be too high for the local market in developing countries.

27. Sometimes an unfavourable bias exists against indigenous environmentally sound technologies, which is particularly unfortunate as local conditions and needs are not always sufficiently taken into account in imported technologies. In this context, the importance of traditional knowledge both in its own right and in a blend with modern knowledge has to be stressed.

PART II Options for Action: Diffusion of Environmentally Sound Technologies

28. The broad objectives of a technology policy for sustainable development are increasing the endogenous capacity for technology development and adaption, ensuring effective technology cooperation amongst enterprises within and between countries and reducing the barriers to the transfer of environmentally sound technologies.

29. The realization of these objectives will involve action at the international level in the form of intergovernmental agreements as well as voluntary efforts by industry. Similarly at the national level, legislative and institutional action will be required as well as in the form of voluntary action by industry.

30. Actions to promote the development and diffusion of environmentally sound technology have to be seen in the context of available financial resources, scientific cooperation, education and other issues. This paper deals with general actions on capacity building and technology transfer the purpose of which is to provide a facilitating framework for the specific requirements which will be identified in the option on sectoral issues.

31. The issue of capacity building in developing countries is dealt with in Part III of this paper. The issue of financial resources which is intimately connected with technology transfer is dealt with in document A/CONF.151/PC/51 in general form. This part focuses on four programmes areas that address the problem of diffusion of environmentally sound technologies.

A. Measures to Promote Access to Technology

32. There are many different vehicles, methods or modalities by which technological assets are transferred. Included in these are foreign aid, direct foreign investment, joint ventures, licensing agreements, turnkey contracts, service contracts, technical assistance. Each vehicle is not exclusive and a simple transaction may include several of these vehicles. All of them are vehicles that operate as part of the investment process. It is therefore essential that sound economic conditions prevail in order to have a sufficient flow of investment.

33. It is difficult to assess the number of environmentally sound technologies where patent protection restricts their availability in developing countries. However, it is important to delineate the conditions that might apply for such technologies in the future. The primary rationale advanced for the importance of patent protection is to reward inventors sufficiently so that new investments continue in research and development.

34. The balance between assured and affordable access for users in developing countries to the latest environmentally sound technologies and fair incentives for and returns on research and development of new environmentally sound technologies is a key issue for consideration.

OPTIONS:

35. In order to promote access to environmentally sound technologies, the following options might be considered.

1. COLLABORATIVE ARRANGEMENTS BETWEEN DEVELOPED AND DEVELOPING COUNTRY ENTERPRISES FOR THE DEVELOPMENT OF ENVIRONMENTALLY SOUND TECHNOLOGIES

36. Joint ventures, together with direct foreign investment constitute important channels of transferring environmentally sound technologies. Collaborative arrangements between developed and developing country enterprises for technological cooperation could be further developed under a long-term partnership. Through this long-term partnership, sound environmental management practices could be transferred and maintained.

2. NEW FORMS OF INTERMEDIATION

37. An effective way of improving access to proprietary technologies could be through new forms of intermediation. Such new forms of intermediation could provide technology brokerage services including financing of the cost of transfer of technologies on a selective basis and providing expertise. The criterion for selective financing could be based on the discrepancy between social costs and private benefits, e.g. where costs of environmental degradation greatly exceed the short-term commercial interest.

3. CODES OF CONDUCT FOR TRANSNATIONAL CORPORATIONS

38. This could include provisions to encourage the diffusion by transnational corporations at a uniform pace of the latest versions of environmentally sound technologies throughout their organizations, while increasing research and development funds contracted locally by affiliate management. It could also cover an obligation to provide all the information necessary for safe and environmentally sound operation of industrial plants.

4. PUBLIC INTEREST PROVISIONS

39. Public interest provisions in existing legislation could be used to promote access to environmentally sound technologies. In the application of public interest provisions in order to encourage transfer of environmentally sound technologies, it would be necessary to define explicitly the scope and coverage of an environmental public interest.

5. LIMITATION ON OBLIGATIONS

40. Obligations under conventions could involve the use patent-protected technologies. It has been suggested that developing countries could be exempted from implementation until the patent expires, or till financial arrangements are established to cover the implementation burden on developing countries, as has been done in the case of the Montreal Protocol on Ozone Depleting Substances.

6. PRINCIPLES FOR DETERMINING CONCESSIONALITY

41. Specific arrangements for concessional transfer of technology would vary from case to case. However, the acceptance of certain principles may

facilitate such case decisions. The factors which need to be taken into account could be:

a. the extent of the discrepancy between social costs and private benefits (e.g. where costs of environmental degradation greatly exceed the short-term commercial interests);

b. the degree of effective competition in the supply of a given technology;

c. the type of obligation on citizens/governments (e.g. phasing out of CFCs), part of which may be counterbalanced by indirect or direct financial support; or

d. the relative advantage of using price discounts as an inducement to alter public or corporate behaviour to obtain a social objective.

B. Access to information and technology assessment

42. Both the access to technological information and the ability to undertake technology assessment are essential requirements in the transition towards sustainable development. Information on the environmental aspects of technologies has two interrelated needs, i.e. upgrading information on existing environmentally sound technologies and upgrading information on environmental risk from technologies on the international market. It should be kept in mind that there is no real shortage of information on environmentally sound technologies. Exceptions may be those from which the owner derives competitive advantage which transfer would put at risk. The problem is one of getting the right information to the right place and the right time in the most useful form.

43. Increasing access to information and ensuring that technological development takes into account the principles of sustainable development requires certain reforms and actions at the policy, institutional and programmatic levels. It also requires a sustained commitment in that direction. Following are some of the options which could be considered.

OPTIONS:

44. In order to promote and support access to technological information and technology assessment, the following measures may be considered.

1. CLEARING HOUSE AND INTERNATIONAL INFORMATION NETWORK

45. Many initiatives, both national and multinational, are currently underway to collate and disseminate information on the available environmentally sound technologies. Potential economies of scale and increased effectiveness may be gained by:

- coordinating these initiatives via a single clearing house for environmentally sound technologies;

- developing the clearing-house into an international information network for the disseminations of information on the available technologies, their sources, and broad terms on which they may be acquired;

- developing the clearing-house as a specialist research institute, which could be commissioned by clients in both developed and developing countries to advise on the relevance of different technologies in addressing specific problems; and

- establishing brokerage between a clearing-house and TNCs on the one hand, and leading research and development institutions on the other, to help facilitate access to the most novel technologies.

46. An efficient information clearing-house would demand national, regional and international funding commitments. Some international agencies have been funding information dissemination initiatives at the national and regional levels. However, the efforts so far have fallen short of the considerable demand for information transfer and dissemination required in the developing countries. National policy frames should be formulated in such a way as to provide technical support to extension services and related activities to improve transfer of information to the economically and socially disadvantaged populations in the country. In all cases special effort should be made to utilize science and technology infrastructure for producing appropriate information materials for the solution of local problems.

2. "BROKERAGE" MECHANISMS

47. In order to assist dissemination of information and transfer of technology, some additional "brokerage mechanisms" might be considered. They could act as intermediaries between financial sources, governments, research institutes, public and private entities and NGOs. Such a mechanism could assist, among other things, in assessing alternative technologies, sorting and identifying suitable technologies, developing mechanisms to overcome the practice of transfer pricing, developing appropriate guidelines and devising multilateral arrangements for funding and training.

48. A large portion of technology development takes place within public R & D institutions or in public systems involved in sewerages waste disposal, water supply, transportation, electricity distribution, etc. Often these take the form of better management, operating or maintenance practices. These "technologies" may be particularly valuable for the promotion of sustainable development. Yet the potential suppliers are often not organized for providing technology. The organizations which need these technologies may also be public systems, for mechanisms for the transfer of this type of public system expertise are limited.

49. Currently, various examples of bilateral and multilateral cooperation are being undertaken aiming at greater transfer of public domain technologies. But much more needs to be done to make information available to potential users and even to help potential suppliers to organize themselves for the transfer of expertise.

50. Special arrangements for public domain technologies in Clearing House and Brokerage Mechanisms might be considered with specific reference to suppliers of such technologies.

3. PROGRAMMATIC MEASURES

51. The following programmatic measures might be considered within existing mechanisms as well as proposed mechanisms.

Establishment of demonstration projects and programmes to show the feasibility and economic viability of "clean" and natural resource conserving industries and agriculture.

Support for firms that adopt a corporate image and activities that provide leadership in the transfer of environmentally sound technologies, including special support for "product champions" among such firms.

Development of methodologies for technology assessment and environmental standards.

C. Promoting environmental soundness in investment decisions

52. In order to reflect environmental priorities and to link technology transfer and development concerns within the framework of sustainable development, it is necessary for governments to formulate policies which take into account environmental concerns and provide specific incentives to encourage the use of environmentally sound technologies. Each government should examine its own policies to determine if subsidies, tax policy or regulations encourage or impede the introduction of sustainable technologies. Such policy reforms need to be embodied in norms, preventive measures and principles which reflect the internalization of environmental costs. Ultimately, both legislation and its effective implementation are needed. A variety of market and non-market instruments and mechanisms affect both the public and private technology systems (commercial/non-commercial; those that provide public and those that provide private goods; and both). Strategies for sound environmental management, for promoting more environmentally sound technologies and discouraging environmentally damaging ones must involve the right combination of market mechanisms and public intervention at each phase in the technology enterprise, including technology assessment, generation, transfer, implementation and internalization.

OPTIONS:

53. In order to imbed environmental soundness in investment decisions, the following areas for action deserve consideration.

a. Development of methodologies for improving environmental evaluation in public investment analytical framework, identification of tools needed and development of those tools;

b. A range of economic incentives that would promote the use of environmentally sound technologies;

c. Full-cost accounting (ecological balance sheets) for private as well as public sector;

d. Policy measures that would steer the process of technological innovation (R & D) towards environmentally sound products;

e. Advisory capacities or groups for diagnosing environmental hazards in specific investment situations;

In this respect, it may be necessary to:

assist developing countries to formulate such policies and regulations,

adopt the principle of "prior informed consent" 2/ for cases involving hazardous technologies,

incorporate environmental considerations into technology transfer agreements, such as assessing the environmental impacts before technology transfer and continuous monitoring of environmental effects of new and old technologies,

include technology assessment at R & D level in light of the shortening of product cycles and innovation chains.

D. Promoting research and development of environmentally soumd technologies

54. The issue of environmentally sound technologies cannot be seen solely from the point of view of transferring them. The successful transfer of technologies depends on endogenous capacities for absorption and adaptation, which in turn depends to some extent on endogenous capacities for technological research and development both at the firm level and in other organizations.

55. There are specific characteristics for each ecosystem such as climate, water bodies, soil or forest cover, which vary between countries and regions. Therefore, environmentally sound technologies have to be tailored to local conditions. In this context apart from modern scientific and technical capacities, the knowledge that traditional communities have acquired over many generations would also be relevant. Research and development programmes should also be tailored to address different environmental and technical conditions at different stages of socio-economic development.

56. Much of research activities and measures to enhance technological capabilities with respect to environmentally sound technologies requires a multidisciplinary approach and may involve collaboration across firms, governments and research institutions.

OPTIONS:

57. In order to promote research and development of environmentally sound technologies, the following options might be considered.

1. COLLABORATIVE EFFORTS AT NATIONAL AND INTERNATIONAL LEVELS FOR SPECIFIC MISSION ORIENTED PROGRAMMES

58. Collaborative efforts at national and international levels for specific mission oriented programmes such as energy efficiency improvements, new sources of energy, forestry conservation and sustainable agriculture, could be pursued and some mechanisms might be considered to involve universities, research institutions, local and transnational firms, and development

agencies, in which each participating party is required to contribute its specialized knowledge and expertise. Governments might also consider direct support for specific research activities.

2. PROMOTION OF EDUCATION AND TRAINING OF RESEARCHERS AND EXPERTS

59. Building up of a "critical mass" in Research and Development is crucial to the effective use and dissemination of environmentally sound technologies and to generate technologies locally. Education and training programmes should also reflect the needs of the specific mission oriented research activities, supported by policies, infrastructures and programmes to produce environmentally literate specialists with an interdisciplinary outlook.

3. INCENTIVES FOR INVESTING IN RESEARCH AND DEVELOPMENT

60. Many governments give incentives to firms for investing in research and development facilities. The basic purpose of these is to reduce the initial costs, spread the risks and allow firms to take a long-term view. These factors, particularly the last mentioned, are very relevant to investing in research, design and development of environmentally sound technologies. Certain possibilities like venture funding have been dealt with in the paper on financial resources (A/CONF.151/PC/51) in the discussion on the Earth Fund.

Part III Capacity Building in Developing Countries

61. A transition to sustainable development is imperative for the human future, both in economic and environmental terms. At the same time, it is clear that sustainable development cannot and should not be imposed from without. It can only be achieved by the decisions and actions of each nation on the basis of its own interests, needs and priorities, including its responsibilities to the international community.

62. Developing countries are especially disadvantaged in effecting this transition. They lack access to the financial resources and technologies they require to revitalize their economies while making the transition to sustainability. One of their most acute and immediate needs is lack of sufficient scientific, technological, professional and related institutional capacities to support these processes at the levels of policy and decision making, sectoral and cross-sectoral programmes and projects as well as research and development. In many cases the inadequacies of such capacities impair the ability of developing countries to evaluate their own development options, and to formulate and implement the policies, programmes and projects required to give effect to them. This can often be a serious handicap in attracting and absorbing the international assistance they may require.

63. External assistance, to be effective, must complement, supplement and support national initiatives, actions and priorities. It is thus of primary importance that the knowledge, experience and expertise of each country in the region be fully mobilized and engaged. Individually, these capacities are often relatively weak and insufficient in relation to the needs they must meet. Collectively, however, they often have the potential of adding up to a much more substantial capacity to respond to particular priority needs if they

were more able to work together and draw on each other's experience and capabilities. Given the facilities and linkages to enable them to do this, the whole can have a great deal more capacity than the mere sum of its parts. The utilization of modern computerized information storage and processing facilities in individual institutions and their linkage through telecommunications with others provides the basis for this and enables each institution to function as part of the whole network, giving it access to the capacities of the network as a whole. The establishment of such networks in each developing country is the principal purpose of the UNDP's Sustainable Development Network's initiative.

64. The establishment of such networks linking existing institutions enables their capacities to be utilized most effectively. It also facilitates greatly the process of determining where and how particular institutions can best be strengthened, which are in the best position to take a lead in respect of specific areas of specialization within the network as well as the strengthening process itself. It facilitates, too, the identification of needs for new institutional capacities as well as expertise and related education and training needs.

65. The transition to sustainable development by developing countries requires that they have access to the best available technologies. The affordability of such technologies is a primary constraint on their availability to developing countries. But equally constraining is the lack of adequate institutional and professional capacities to choose and to use such technologies. It is important that in choosing technologies to meet particular needs, developing countries have access to all available knowledge within their own country, as well as from external sources, as to the range of technologies available and the experience of others in the use of such technologies. They must also have the capacities required to guide and ensure their effective use.

66. Most developing countries are not able to provide the resources required to establish such networks amongst existing institutions and provide for the substantial strengthening and improvement of their capacities needed to support the transition to sustainability. Inadequacies of such facilities often leads to their own professionals and experts seeking more attractive opportunities outside of their countries. Those who remain at home are usually constrained by inadequate facilities and budgets. Nor do they have the resources or facilities required to enable them to have access to other sources of knowledge, experience and expertise within the country and region as well as outside of it.

67. This is true of a wide range of specialized professional and technical institutions, including those devoted to education, training, research and development and policy research as well as those contributing directly to operational programmes and activities. Such institutions exist in each particular sector, e.g. water quality, energy, agriculture, forestry, fisheries, climate, health, toxic substances and the other key areas included in sustainable development. Of growing importance, too, are the capacities, including systems analysis, needed to deal with the cross-sectoral dimensions of sustainable development issues. Indeed most such issues must now be understood and managed on a cross-sectoral or multisectoral basis and in most countries the capacities to do this effectively are at a very early and at an inadequate stage of development.

Regional initiative

68. Capacity building is not a new subject. Special measures have been undertaken in all regions designed to strengthen professional and institutional capacities and related programmes of education and training. Many of the elements required already exist. The extent of these and the resources available to support them is, however, still very limited in relation to the capacity building needs of developing countries. The preparatory work for the 1992 Conference on Environment and Development is making clear the extensive nature of the capacity building needs of developing countries and the importance of these in terms of environment and development. It is also helping to identify these needs in respect of each of the key issues being addressed in Agenda 21, the programme of action to be submitted to the Conference. These needs are being defined primarily in global terms; yet it is recognized that in most cases the capacity to meet them must be met primarily through strengthening of capacities at the national and regional levels.

69. The 1992 Earth Summit provides a unique opportunity to obtain the political sanction and commitment to the process of capacity building. Accordingly, it is proposed that the leading environment and development organizations of each region join in providing to UNCED the benefit of their advice and guidance as to existing professional and institutional capacities in their region and the needs and potentials for linking, strengthening and improving such capacities in the environment and development areas to be addressed by UNCED in Agenda 21, including:

i) identification of existing capabilities - research and development institutions, technical institutes, university programmes etc, and their potentials and needs for strengthening and improvement as seen from the perspective of their country and region;

ii) identification of institutions which are or could be in a position to take a lead within the region in respect of a particular area of specialization; the existence of current facilities and identification of additional needs for accessing and disseminating information and exchange of experience within the region;

iii) identification of sources of information on available technologies to meet particular sustainable development needs and the experience of the countries within the region in using them as well as on alternative technologies;

iv) identification of existing facilities for linking institutions within one region with their counterparts in other regions and with external sources of knowledge, experience, expertise, technologies and financial and technical assistance and the needs and potentials for expanding such facilities.

70. It is recognized that within the time available this exercise would primarily consist of assembling and analysing the information now available from regional organizations and national sources. UNDP Resident Representatives are being asked to provide this information in respect of each of their countries of assignment. It is expected that this will produce a

preliminary survey of professional and institutional capacities in each region together with guidance on the needs and potentials for strengthening such capacities and establishment in each region of a "sustainable development and technology support system" and how these could be most usefully related to or integrated with existing programmes, including particularly the UNDP Sustainable Development Network initiative. The results of this survey, together with the work being undertaken on an issue-by-issue basis in the working parties established by the UNCED Secretariat, will be the basis for establishing the specific proposals that will go to the Preparatory Committee for the 1992 Conference for their consideration and recommendation to the Conference itself.

71. In cooperation with UNDP, a small task force is being set up in each developing region (as defined by the United Nations) to conduct this preliminary survey in the region and provide UNCED with the results of the survey and its recommendations and guidance in respect of the capacity-building potentials and needs in the region. The task force would consult closely with the regional development bank for the region, the UN Regional Economic Commission, the other principal regional organization or organizations, UNEP and the World Bank. UNCED will make available to each task force relevant information available through the work of its working parties and facilities to ensure coordination of the work of the regional task forces with other related aspects of its preparatory work.

72. The work of the task force must be completed by 1 November 1991 in order to be incorporated into the documentation for the final session of the UNCED Preparatory Committee.

Possible follow-up arrangements

73. While it would be premature at this point to anticipate the specific arrangements that might be made to give effect to a major new capacity-building initiative, should this result from the proposed survey, it is not expected that this would require establishment of a new central institution. Rather, it is more likely to give rise to establishment of specific mechanisms for coordination and cooperation amongst the existing institutions which are involved in providing support for development of professional and institutional capacities in each region. This might, for example, include provision for establishment of a consultative group mechanism to mobilize funding for capacity building, supplemented, perhaps, by a special fund which could play a lead and catalytic role in respect of such mobilization and a technical advisory group.

74. It is envisaged that such arrangements would be organized on a regional basis within the framework of a globally co-ordinated programme. The issue of a special fund is dealt with in the document on Financial Resources (A/CONF.151/PC/51).

Notes

1/ Paras 5 and 6 are based on: "Transfer and Development of Technology in a Changing World Environment: the Challenge of the 1990s". Report by the UNCTAD secretariat TD/B/C.6/153, 25 January 1991.

2/ Prior Informed Consent (PIC) refers to the principle that international shipment of a chemical that is banned or severely restricted in order to protect human health and the environment should not proceed without the agreement, where such agreement exists, or contrary to the decision, of the designated national authority in the importing country. (London Guidelines, 1989)

PIC Procedure is a procedure for formally obtaining and disseminating the decisions of importing countries as to whether they wish to receive future shipments of chemicals, which have been banned or severely restricted. (London Guidelines, 1989)